

Spiders from Colombia XV.
The linyphiid genus *Grammonota* Emerton,
1882 in northern Colombia, with descriptions
of two new species (Arachnida: Araneida)

by

Hans-Georg MÜLLER * & Stefan HEIMER **

With 27 Figures

ABSTRACT

Four species of *Grammonota* (Araneida: Linyphiidae) have been found in the Santa Marta area, northern Colombia, two of which (*G. culebra* n.sp., *G. samariensis* n.sp.) are new to science. The others, *G. secata* Chickering, 1970 and *G. teresta* Chickering, 1970, known up to now only from the type locality in Panama are redescribed. Notes on the habitats of the species are also given.

Species of *Grammonota* are mainly distributed in North America, with some of these known to occur also in Middle America south to Panama. Up to now 46 species placed into that genus came to our knowledge. Most of these are poorly described and a sketch of the vulva is available only for *Grammonota pictilis* (O.P. Cambridge, 1875). Many species are known only from the type locality, without any further information on their biology and ecology. Because of the difficulties linked with *Grammonota* and the poor knowledge of South- and Middle American Linyphiidae, no attempts have been made to discuss the intrageneric affinities of the species involved in that paper. Two of the four species found in northern Colombia are new to science. The others, known only from the type locality in Panama (CHICKERING 1970) are redescribed. Only *G. teresta* could be collected also in the mountain region of the Sierra Nevada, all the others are from the lowland area along the coast in the vicinity of Santa Marta.

* Hans-Georg Müller, Institut für Allgemeine und Spezielle Zoologie der Justus-Liebig-Universität, Heinrich-Buff-Ring 29, 6300 Giessen, Germany.

** Stefan Heimer, Kleinzschachwitzer Strasse 18, 8045 Dresden, Germany.

The fieldwork has been carried out over a period of about 14 months in 1985–86, using also yellow pan traps and pitfall traps. The research was made possible through a financial grant of the German Academic Exchange, with technical support given by the Instituto de Investigaciones Marinas de Punta de Betin (INVEMAR/COLCIENCIAS) in Santa Marta.

Specimens are deposited in the Muséum d'Histoire naturelle, Genève (MHNG), the Instituto de Investigaciones Marinas de Punta de Betin (INVEMAR) and in the authors collections.

Grammonota culebra n.sp. (figs 1–6)

H o l o t y p e : ♂ (MHNG); «Villa Culebra» near Bonda, 10 km north-east of Santa Marta; pitfall-traps, November–December 1985.

P a r a t y p e s : 165 ♂♂, 54 ♀♀, deposited as follows: 144 ♂♂, 45 ♀♀ Coll. Müller; 3 ♂♂, 3 ♀♀ Coll. INVEMAR; 8 ♂♂, 3 ♀♀ MHNG; 10 ♂♂, 3 ♀♀ Coll. Heimer; together with holotype. 1 ♂ (MHNG); Bahia Nenguangue, about 25 km north-east of Santa Marta, drought deciduous lowland forest, from low vegetation, 8 October 1985. 1 ♂ (MHNG); «Villa Culebra», yellow pan traps, 1–11 November 1985. 1 ♀ (Coll. Heimer); Punta de Betin, Santa Marta, pitfall traps, November–December 1985.

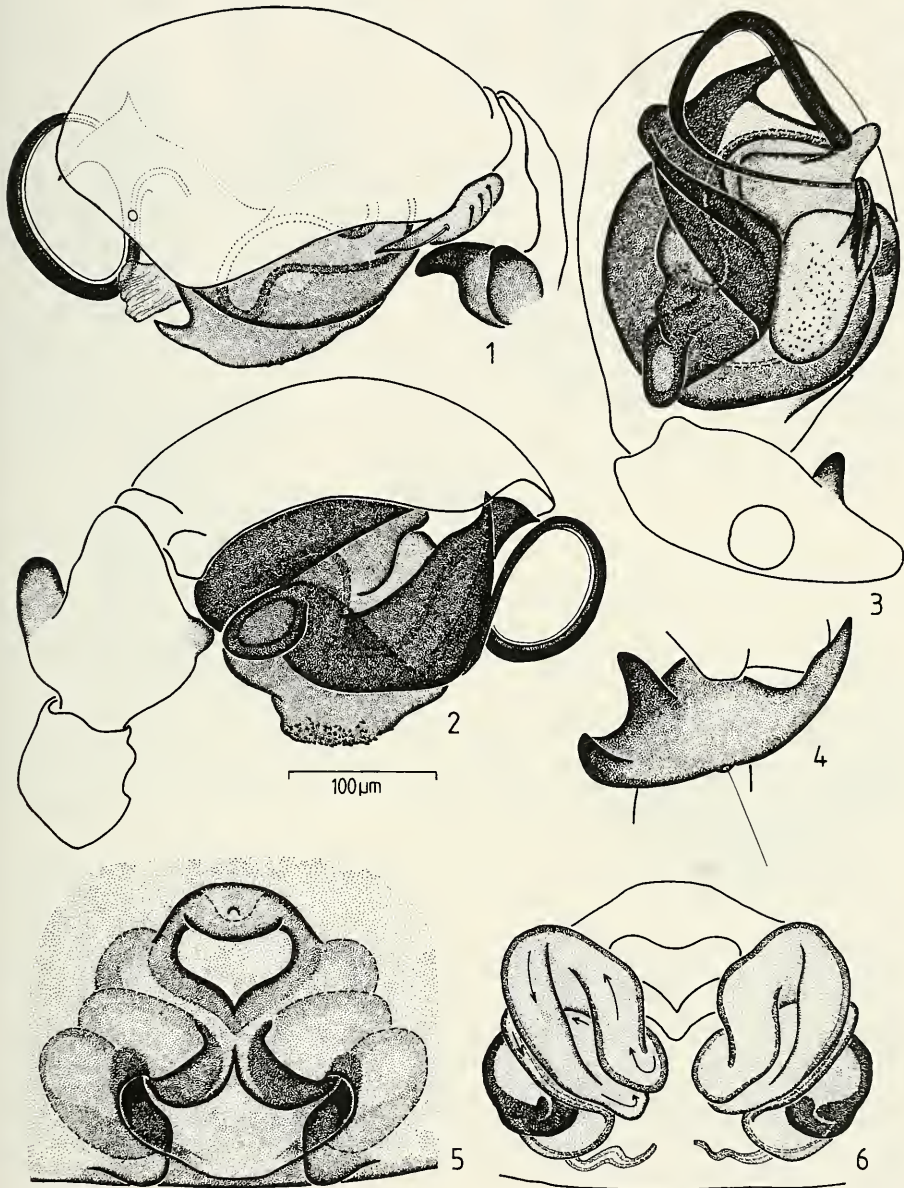
Etymology: The specific name is a noun in apposition taken from the type locality, «Villa Culebra».

DESCRIPTION, ♂: Total length about 1.4 mm. Prosoma 0.63 mm long, 0.54 mm wide, ocular area without modifications. Colour of prosoma reddish brown with black ocular area bearing few short setae. Gnathocoxae and chelicerae reddish brown, sternum and labium reddish brown with indistinct dark brown markings. Abdomen grey with two pairs of lighter spots in the anterior half on the dorsal side and with some chevrons in the posterior half. In some specimens abdomen entirely grey. AME smallest, diameter about two thirds of lateral eyes. PME separated from each others by their diameter. ALE, PLE and PME of almost equal size. Chelicerae with 5 teeth on the anterior and 2–3 teeth on the posterior margin. Legs yellow orange with short dorsal spine on tibiae II–III (0.16). Metatarsus I–III with trichobothrium (0.3). Leg-measurements:

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	0.50	0.16	0.43	0.37	0.31	1.77
II	0.47	0.15	0.37	0.36	0.29	1.64
III	0.46	0.16	0.32	0.33	0.29	1.56
IV	0.60	0.17	0.50	0.42	0.32	2.01

Genital morphology: Tibia of palp much wider than long with 3 strong, tooth-like apophyses. Paracymbium small and slender, tapering in its distal half to pointed apex. Embolus widened at its base, with two apophyses, distal part narrow and elongate, in one loop. Radix flattened, wide and coiled. Near the radix a large apophysis, its base roughly oval with denticulations; its distal part projected, with a furrow over its entire length. Functionally, this probably may serve as conductor.

♀: Total length about 1.6 mm. Prosoma 0.65 mm long, 0.56 mm wide. In general habitus and colouration quite similar to ♂. Tibiae II–IV of legs with short spine in 0.1. Metatarsus III with trichobothrium in 0.35. Leg measurements:



FIGS 1-6.

Grammonota culebra n.sp., ♂ ♀. 1) palp, retrolateral view; 2) palp prolateral view; 3) palp, ventral view; 4) tibial apophyses of palp, dorsal view; 5) epigynum, ventral view; 6) vulva, dorsal view.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	0.53	0.18	0.42	0.38	0.33	1.84
II	0.50	0.18	0.37	0.35	0.33	1.73
III	0.46	0.16	0.32	0.33	0.29	1.56
IV	0.60	0.17	0.50	0.42	0.32	2.01

Genital morphology: Epigynum with two grooves wider than long. The anterior one heart-shaped, anteriorly overlapped by a short, semicircular process having a small ventral excavation. Posterior groove with pair of large, anterolateral pouches; posterior of these with narrow furrow directed to the duct openings. Ducts wide, in several loops, barely sclerotized.

R e m a r k s : *G. culebra* apparently is a lowland species preferring xerothermic habitats. All specimens found are from dry locations along the coast of the Santa Marta area. Although there are some features of the copulatory organs in disagreement with the other species of *Grammonota* (shape of paracymbium, «conductor» and epigynum) it is provisionally placed into that genus because of the very incomplete knowledge of species and generic delimitation of neotropical Linyphiidae.

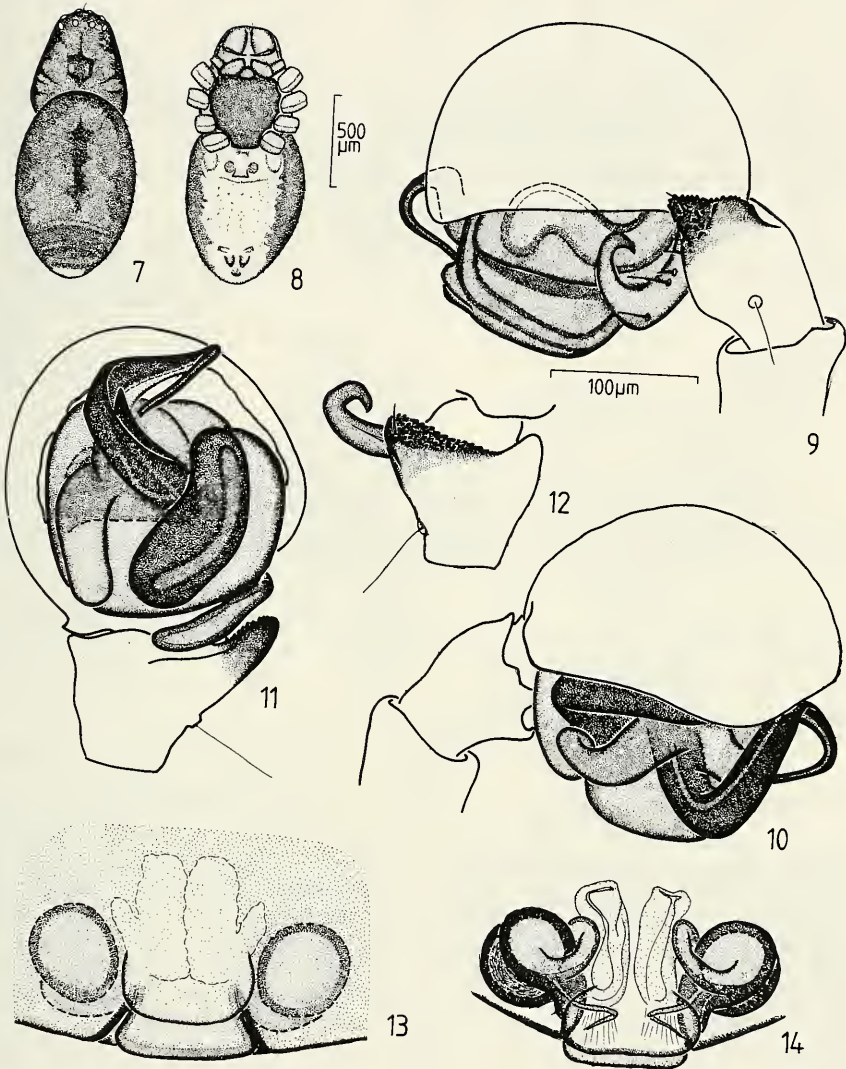
***Grammonota samariensis* n.sp. (figs 7–14)**

H o l o t y p e : ♂ (MHNG); «Villa Culebra» near Bonda, 10 km north-east of Santa Marta; pitfall-traps, November–December 1985.

P a r a t y p e s : 2 ♂♂, 12 ♀♀, deposited as follows: 2 ♂♂, 11 ♀♀ MHNG; 1 ♀ Coll. INVEMAR; together with holotype. 7 ♂♂, deposited as follows: 2 ♂♂ Coll. Heimer, 3 ♂♂ Coll. Müller, 2 ♂♂ Coll. INVEMAR; «Villa Culebra», pitfall traps, October 1985. 1 ♀ (Coll. Müller); «Villa Culebra», under stones, without date. 2 ♀♀ (Coll. Heimer); Punta de Betin, Santa Marta, pitfall traps, November–December 1985.

Etymology: The specific name refers to the area of the type locality, the vicinity of Santa Marta.

DESCRIPTION, ♂: Total length about 1.4 mm. Prosoma 0.71 mm long, 0.51 mm wide, slightly raised in the eye region, but without cephalic pit. Colour of prosoma dark brown with black ocular area, a black median patch and also blackish radiating striae. Chelicerae and sternum dark brown, gnathocoxae yellowish brown. Abdomen dark grey with some indistinct chevrons in posterior half on dorsal surface. Ventral side of abdomen uniformly grey. AME smallest, their diameter about half of lateral eyes. PME separated from each others by about their diameter. ALE, PLE and PME of almost equal size. Chelicerae with 5 teeth on anterior and 3 teeth on posterior margin. Legs yellow orange or yellow with dorsal spine on tibiae of all legs (0.13–0.16). Metatarsi I–III with trichobothrium (0.29–0.33). Leg measurements:



FIGS 7-14.

Grammonota samariensis n.sp., ♂ ♀. 7) ♀, dorsal view; 8) ♀, ventral view; 9) palp, retrolateral view; 10) palp, prolateral view; 11) palp, ventral view; 12) tibia and paracymbium of palp, dorsal view; 13) epigynum, ventral view; 14) vulva, dorsal view.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	0.50	0.18	0.45	0.38	0.34	1.85
II	0.48	0.17	0.39	0.37	0.32	1.73
III	0.42	0.16	0.30	0.32	0.26	1.46
IV	0.53	0.17	0.46	0.41	0.30	1.87

Genital morphology: Tibia of palp dorsally with short and robust, denticulate retrolateral apophysis. Cymbium with numerous elongate, very fine hairs (not drawn). Paracymbium narrow, strongly curved with apex pointed. Embolus flattened, relatively long, near its base with tooth-like apophysis. Radix relatively short and coiled.

♀: Total length about 1.5 mm. Prosoma 0.67 long, 0.52 mm wide. In general habitus similar to ♂. Ventral surface of abdomen with broad stripe of whitish colour, extending posteriorly beyond spinnerets. All tibiae of legs with dorsal spine (I-III 0.13–0.18, IV 0.27). Metatarsi I–III with dorsal trichobothrium (0.30–0.31). Leg measurements:

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	0.57	0.19	0.46	0.41	0.35	1.98
II	0.52	0.19	0.41	0.39	0.32	1.83
III	0.48	0.17	0.32	0.34	0.28	1.59
IV	0.61	0.17	0.50	0.43	0.32	2.03

Genital morphology: Epigynum anteriorly with broadly rounded lobe wider than long. Posteriorly two narrow furrows directing to duct openings. Ducts wide, not sclerotized. Receptacles almost globular, apparently bipartite when observed in dorsal view.

Remarks: Like *G. culebra* n.sp., *G. samariensis* also seems to be a lowland species with preference of xerothermic locations. No close affinities to other species of the genus can be seen.

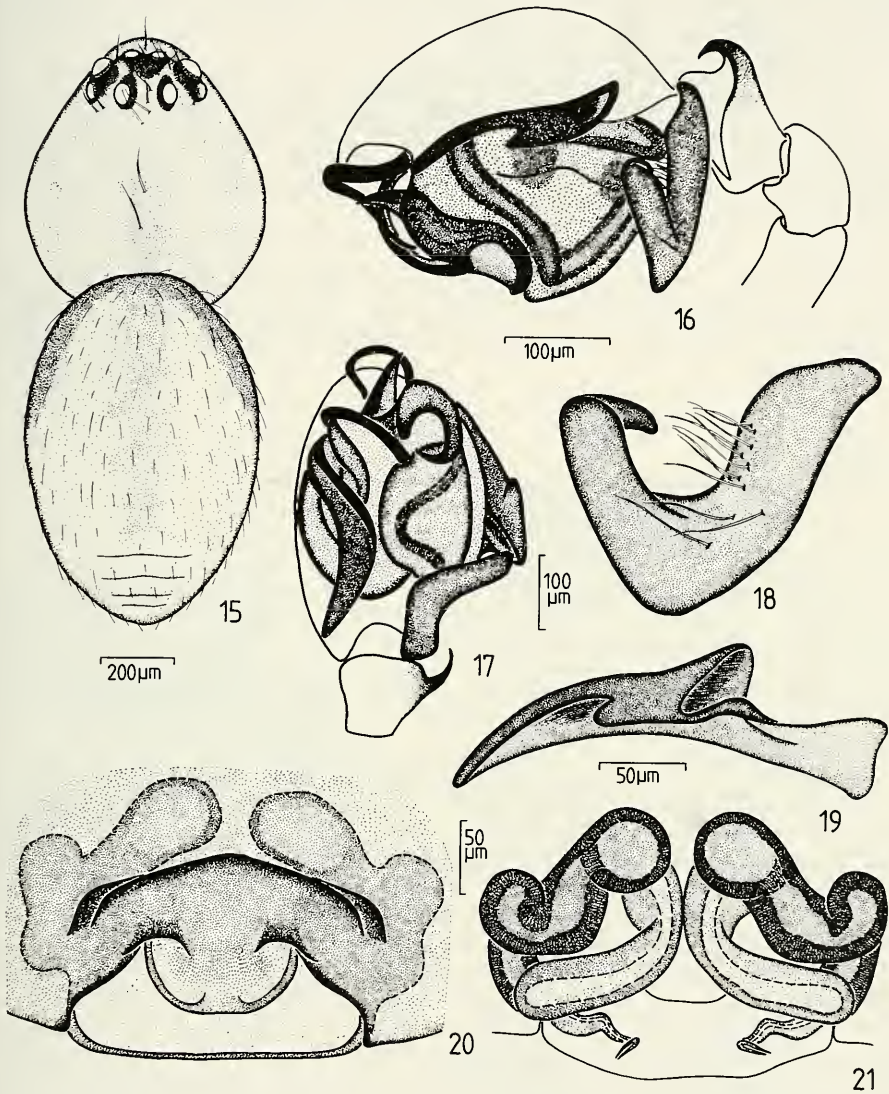
Grammonota secata Chickering, 1970 (figs 15–21)

1970 *Grammonota secata* Chickering, *Psyche, Camb.* 77: 356–358, figs 27–32 (♂ ♀).

Material: 1 ♂, 2 ♀♀ (MHNG); Cañaverales, about 40 km north-east of Santa Marta, from low vegetation, 11 August 1985.

DESCRIPTION, ♂: Total length 1.55 mm. Prosoma 0.71 mm long, 0.63 mm wide. Prosoma yellowish with head region light grey and with radiating striae. Eye region black with several short setae. Gnathocoxae yellowish, labium grey. Sternum light grey with grey margin. Abdomen yellowish white with light grey marking on dorsal side, as figured. AME smallest, diameter almost half of ALE. PME and ALE subequal in size. PME separated from each others by about 1.5 their diameter. Chelicerae light brown, anterior margin with 4 teeth, posterior margin with only 1 tooth. Legs yellowish white with dorsal spine on all tibiae. All metatarsi with trichobothrium (metatarsus IV, 0.83). Leg measurements:

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	0.73	0.21	0.62	0.65	0.42	2.63
II	0.76	0.21	0.63	0.66	0.42	2.68
III	0.60	0.19	0.46	0.53	0.33	2.11
IV	0.70	0.21	0.58	0.65	0.38	2.52



FIGS 15-21.

Grammonota secata Chickering, 1970, ♂ ♀. 15) ♂, dorsal view; 16) palp, retrolateral view; 17) palp, ventral view; 18) paracymbium; 19) retrolateral margin of cymbium; 20) epigynum, ventral view; 21) vulva, dorsal view.

Genital morphology: Tibia of palp dorsolaterally with strong, hook-like apophysis. Cymbium with retrolateral, sclerotized ridge which is medially notched and has a deep proximal excavation. Paracymbium well developed, hook-shaped with apex directed to bulb. Embolus long and narrow, in two coils.

♀: In general habitus, colouration and measurements quite similar to ♂.

Genital morphology: Epigynum with large groove much wider than long. Anteriorly of this groove it is bordered by a strong, sclerotized ridge. Epigyneal groove anteromedially with rounded lobe having pair of pouch-like lateral excavations. Receptacles very long, tube-shaped and coiled.

Remarks: *G. secata* was known only from the type locality, Barro Colorado Island in Panama. From the few specimens available nothing can be said on its habitat preference. No close affinities to other members of the genus are apparent.

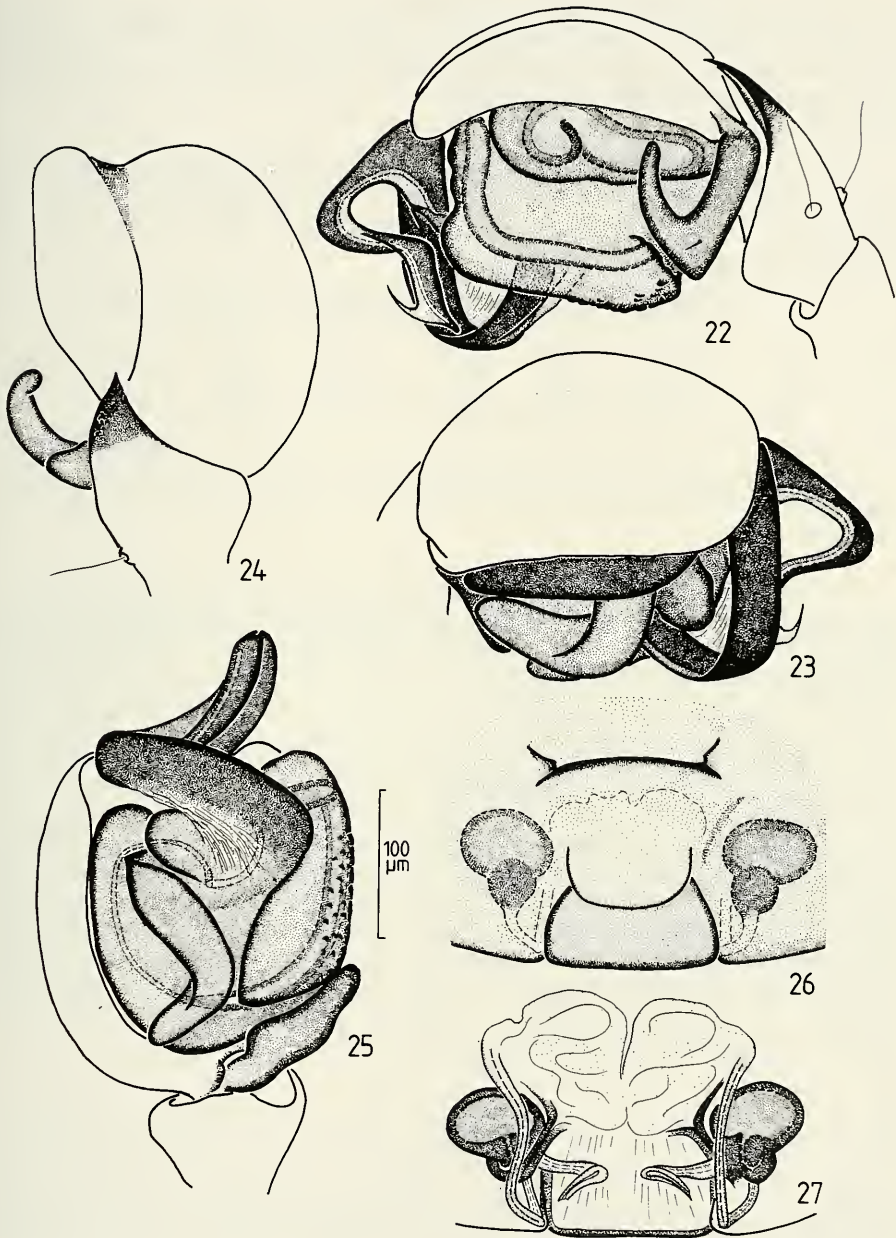
Grammonota teresta Chickering, 1970 (figs 22–27)

1970 *Grammonota teresta* Chickering, *Psyche, Camb.* 77: 358–360, figs 33–37 (♂ ♀).

Material: 1 ♀ (Coll. Müller); Cañaverales, about 40 km north-east of Santa Marta, from low vegetation, 11 August 1985. 1 ♂ (MHNG); San Piedro de la Sierra, Sierra Nevada de Santa Marta in about 1000 m, 50 km south-west of Santa Marta; from low vegetation, 14 August 1985. 1 ♂, 2 ♀ ♀, 1 juv. (Coll. Heimer); near mouth of the Rio Fundación in the brackish water lagune Ciénaga Grande de Santa Marta; from mangroves, 29 August 1985. 1 ♀ (MHNG); Rio Don Diego, about 70 km north-east of Santa Marta; from low plants at the bank of the river, 25 March 1986.

DESCRIPTION, ♂: Total length about 1.5 mm. Prosoma 0.63 mm long, 0.51 mm wide, without cephalic pit. Prosoma dark brown with black ocular area, black median patch and also black radiating striae. Sternum black, labium grey, gnathocoxae blackish with proximal margin light grey. Chelicerae light brown with blackish pattern on frontal side. Abdomen dark grey to dark brown with indistinct pattern; ventral side with pair of narrow striae which are widely separated from each others. AME smallest, diameter about two thirds of ALE. PME separated from each others by about their diameter. ALE, PLE and PME subequal in size. Legs long and slender with many long spines. Femora blackish brown, distal segments brown with indistinct blackish pattern. Trochanters and coxae with distinct colour pattern, different in legs I–IV: Coxa and trochanter of leg I blackish; in leg II of same colour except of ventral side being yellowish: trochanter and coxa of leg III yellowish white with few indistinct blackish markings. Trochanter and coxa of leg IV entirely yellowish white. Metatarsi I–III with trichobothrium (0.26–0.27). Leg measurements:

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	0.62	0.19	0.61	0.57	0.46	2.45
II	0.56	0.18	0.51	0.49	0.44	2.18
III	0.48	0.16	0.38	0.42	0.38	1.82
IV	0.61	0.16	0.38	0.42	0.38	2.16



FIGS 22-27.

Grammonota teresta Chickering, 1970, ♂ ♀. 22) palp, retrolateral view; 23) palp, prolateral view; 24) palp, dorsal view; 25) palp, ventral view; 26) epigynum, ventral view; 27) vulva, dorsal view.

Genital morphology: Tibia of palp dorsally with strong, toothlike apophysis without denticulations. Cymbium dorsally with shallow furrow over entire length. Paracymbium well curved with apex rounded. Embolus flattened, wide and long, coiled; near its apex with remarkable barb. Radix well developed and coiled. Ectal margin of tegulum with several denticulations.

♀: Total length about 1.6 mm. Prosoma 0.60 mm long, 0.50 mm wide. In general habitus and colouration similar to ♂. Abdomen of somewhat lighter colouration with some chevrons of light grey colour in posterior half. Proximal half of femur in leg IV yellowish white. Leg measurements:

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	0.72	0.20	0.68	0.64	0.49	2.73
II	0.62	0.18	0.54	0.54	0.45	2.33
III	0.54	0.17	0.41	0.46	0.39	1.97
IV	0.67	0.17	0.61	0.54	0.40	2.39

Genital morphology: Epigynum anteriorly with broadly rounded lobe wider than long. Anterior to this lobe a transverse furrow wider than epigyneal lobe. Ducts wide, not sclerotized.

R e m a r k s : As *G. secata*, this species was known only from the type locality in Panama. The present records in Colombia point out, that *G. teresta* may prefer areas with higher humidity than *G. culebra* n.sp. and *G. samariensis* n.sp. Close affinities to other members of the genus are not recognizable.

ZUSAMMENFASSUNG

Est wird über vier Arten der Gattung *Grammonota* (Araneida: Linyphiidae) aus der Region Santa Marta, Nord-Kolumbien berichtet. Zwei der Arten erwiesen sich als neu für die Wissenschaft (*G. culebra* n.sp., *G. samariensis* n.sp.), die anderen, *G. secata* Chickering, 1970 und *G. teresta* Chickering, 1970 werden wiederbeschrieben. Bei drei der Arten sind Angaben über die Habitatpräferenz möglich. Auf eine Diskussion der Verwandtschaftsbeziehungen wird verzichtet, da der unzureichende Kenntnisstand neotropischer Linyphiiden und durchweg ungenaue Beschreibungen der Arten von *Grammonota* eine solche wenig sinnvoll erscheinen lassen.

REFERENCE

- CHICKERING, A.M. 1970. New species of *Grammonota* (Araneae, Linyphiidae) from Panama and Costa Rica. *Psyche, Cambr.* 77: 347–360.